PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	**Robert Francis SQUIBBS**	) Examiner: **K. M. PATEL**
		)
Serial No.:	**10/635,870**	) Art Unit: 2188
		)
Filed:	August 5, 2003	) Our Ref: B-5189 621138-2
		) 300204852-2US
For:	"CACHE MANAGEMENT IN A	)
	MOBILE DEVICE"	) Date: August 8, 2007
		)
		) Re: ***Appeal to the Board of Appeals***

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the Final rejection dated January 18, 2007, for the above identified patent application. A Notice of Appeal was filed on May 17, 2007, in support of which Appellant submits this Appeal Brief together with a petition for a one month extension of time pursuant to 37 C.F.R. 1.136(a) and a check in the amount of $120.00 for the fee set forth in 37 C.F.R.1.17(a)(1). Please deduct the amount of $500.00 for the fee set forth in 37 C.F.R. 1.17(c) for submitting this Brief from deposit account no. 08-2025.

REAL PARTY IN INTEREST

The real party in interest to the present application is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

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RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences related to the present application.

STATUS OF CLAIMS

Claims 1, 3-5, 7-9, 11 and 13-19 are pending in the application and are reproduced in the accompanying appendix. Claims 1, 3-5, 7, 8, 11, 13-15, 17 and 18 stand rejected and are the subject of this Appeal. Claims 2, 6, 10, 12, and 20 have been cancelled without prejudice, and claims 9, 16 and 19 are objected to.

STATUS OF AMENDMENTS

No Amendment After Final Rejection has been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention claimed in claim 1 is directed to a method of managing a cache (44) of a mobile device (31) carried by a user (30) (p. 7 ll. 11 - 31), the cache being used for storing items (65) associated with locations in a real-world space being visited by the user (p. 8 ll. 3 - 25); the method comprising (a) receiving an item at the mobile device and initially storing the received item in an un-degraded form (p. 12 l. 30 - p. 13 l. 8), and (b) upon a predetermined condition concerning the received item and/or the mobile device becoming satisfied, degrading the received item to reduce the amount of cache space needed to store the received item and storing the degraded item in the cache instead of the un-degraded item (p. 38 l. 16 - p. 40 l. 7; Figs. 1 - 2).

The invention claimed in claim 11 is directed to an arrangement for managing a cache (44) of a mobile device (31), the cache being intended for use in storing items (65) associated with locations in a real-world space visited by a user (3) of the mobile device; the arrangement comprising receiving means (46) for receiving an item at the mobile device, and degrading means (45) for degrading the received item upon a predetermined condition concerning the item and/or the mobile device becoming satisfied so as to reduce the amount of cache space needed to store the received item, and for storing the degraded item in the cache instead of the un-degraded item (p. 38 l. 16 - p. 40 l. 7; Figs. 1 - 2).

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GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Issue 1:   Whether Claims 1, 3-5, 8, 11, 13-15 and 18 are patentable under 35 U.S.C. 103(a) over U.S. Publication 2003/0060973 to Mathews (hereinafter "Mathews") or U.S. Pat. No. 6,452,544 to Hakala (hereinafter "Hakala") in view of U.S. Pat. No. 6,324,621 to Singh (hereinafter "Singh").

Issue 2:   Whether Claims 7 and 17 are patentable under 35 U.S.C. 103(a) over Mathews or Hakala and Singh and further in view of U.S. Publication 2003/0115042 to Chen (hereinafter "Chen").

ARGUMENT

Issue 1:   Whether 1, 3-5, 8, 11, 13-15 and 18 are patentable under 35 U.S.C. 103(a) over U.S. Publication 2003/0060973 to Mathews (hereinafter "Mathews") or U.S. Pat. No. 6,452,544 to Hakala (hereinafter "Hakala") in view of U.S. Pat. No. 6,324,621 to Singh (hereinafter "Singh").

Claims 1, 3-5, 8, 11, 13-15 and 18 continue to stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication 2003/0060973 to Mathews or U.S. Pat. No. 6,452,544 to Hakala in view of U.S. Pat. No. 6,324,621 to Singh. In reply to Appellant's previous arguments that Singh does not teach degrading the received item upon a predetermined condition concerning the received item and/or the mobile device becoming satisfied (as per claim 1), the Examiner presently retorts that "when there is not enough space to store incoming data, the previously received data (item) from the cache is evicted to make room for newly received data, the selection of evicting previously received data is done based on when the previously received item becomes LRU in the cache (the item becoming LRU is interpreted as the predetermined condition concerning the (previously) received item)."

Appellant respectfully submits that the Examiner's reasoning is self-contradictory on its face. If the previously received item is evicted to make room when there is not enough space to store incoming data, then the eviction is clearly done in response to receiving new data, not in response to the old data having reached a predetermined condition. The Examiner's interpretation that the item becoming LRU (least recently used) is the predetermined condition does not support his own view, because an item can become LRU and still not be evicted unless

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and until new data arrives in the cache. By Singh's method, an item can become the LRU item in uncompressed cache and happily remain so for as long as no new data arrives in the cache and as long as the uncompressed cache does not become full; neither of these conditions (receiving new data and the uncompressed cache becoming full) has anything to do with the previously received item, and both are required before the previously received item becomes compressed.

In view of the above, Appellant respectfully submits that claim 1 is clearly novel and non-obvious over the art on record and the Examiner's interpretation of the reference is clearly erroneous, and thus respectfully requests that the Examiner be overturned on appeal and claim 1 allowed. Furthermore, the above argument is equally probative of the novelty and nonobviousness of claim 11, and thus Appellant respectfully requests that claim 11 be allowed as well.

Claims 3-5 and 8 depend from claim 1, and claims 13-15 and 18 depend from claim 11. "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, in light of the above discussion of claim 1, Appellant submits that claims 3-5, 8, 13-15 and 18 are also allowable at least based on their dependency.

Issue 2:   Whether Claims 7 and 17 are patentable under 35 U.S.C. 103(a) over Mathews or Hakala and Singh and further in view of U.S. Publication 2003/0115042 to Chen (hereinafter "Chen").

Claims 7 and 17 stand rejected under 35 U.S.C. 103(a) over Mathews or Hakala and Singh and further in view of U.S. Publication 2003/0115042 to Chen. Claim 7 depends from claim 1 and claim 17 depends from claim 11. In view of the above discussion, Appellant respectfully submits that claims 7 and 17 are therefore allowable at least based on their dependency.

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In view of all the above, Appellant respectfully submits that all pending claims are novel and nonobvious and request the Board to overturn the Examiner's rejection of the claims on appeal and pass the case to allowance.

CONCLUSION

For the many reasons advanced above, Appellant respectfully contends that each pending claim is patentable and reversal of all rejections and allowance of the case is respectfully solicited.

I hereby certify that this correspondence is being deposited with the United States Post Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

Respectfully submitted,

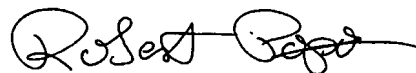August 8, 2006
(Date of Transmission)

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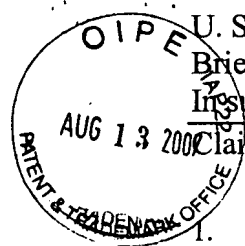
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Claims

1.   A method of managing a cache of a mobile device carried by a user, the cache being used for storing items associated with locations in a real-world space being visited by the user; the method comprising:

(a) receiving an item at the mobile device and initially storing the received item in an un-degraded form, and

(b) upon a predetermined condition concerning the received item and/or the mobile device becoming satisfied, degrading the received item to reduce the amount of cache space needed to store the received item and storing the degraded item in the cache instead of the un-degraded item.

3.   A method according to claim 1, wherein said predetermined condition is at least partially based on a probability of usage of the received item as assessed from a determination of a probability of usage of that or other items having regard to a progress of the user around said real-world space.

4.   A method according to claim 1, wherein said predetermined condition is at least partially based on the time elapsed since the item was last accessed by the user or, if the item has not yet been accessed, since the item was initially loaded into the cache.

5.   A method according to claim 1, wherein said predetermined condition is at least partially based on an amount of available cache space remaining.

7.   A method according to claim 1, wherein the degrading of the item in step (b) is effected by at least one of:

where the item comprises a sampled media stream, reducing the sample rate and/or the number of bits used to represent each sample;

selectively removing portions of the item;

where the item is an image, reducing the resolution of the image;

changing a format in which the item is represented.

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8.   A method according to claim 1, wherein the degraded item is stored in the cache along with an associated flag indicative of its degraded form.

9.   A method of presenting an item to a user of a mobile device where said item is stored in a cache of the mobile device according to the cache management method of any one of the preceding claims, the item presentation method comprising:

        (a) upon the item being required for presentation to the user, retrieving the item from cache and presenting it to the user;

        (b) determining whether the item is in a degraded form, this step being carried out before, at the same time as, or after step (a); and

        (c) where step (b) indicates that the item is in a degraded form, requesting an un-degraded form of the item from an off-device resource and when received, substituting the un-degraded form of the item for the degraded form being presented to the user.

11.   An arrangement for managing a cache of a mobile device, the cache being intended for use in storing items associated with locations in a real-world space visited by a user of the mobile device; the arrangement comprising:

        receiving means for receiving an item at the mobile device, and

        degrading means for degrading the received item upon a predetermined condition concerning the item and/or the mobile device becoming satisfied so as to reduce the amount of cache space needed to store the received item, and for storing the degraded item in the cache instead of the un-degraded item.

13.   An arrangement according to claim 12, further comprising prediction means for determining a probability of usage of the received item as assessed from a determination of the probability of usage of that or other items having regard to a progress of the user around said real-world space, the predetermined condition being at least partially based on said probability of usage as determined by said prediction means.

14.   An arrangement according to claim 12, further comprising lapsed-time counting means for determining the time elapsed since the item was last accessed by the user or, if the item has not yet

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been accessed, since the item was initially loaded into the cache, said predetermined condition being at least partially based on said time elapsed as determined by the lapsed-time counting means.

15.   An arrangement according to claim 12, further comprising free cache-space determining means for determining an amount of available cache space remaining, said predetermined condition being at least partially based on the available cache space remaining as determined by said free cache-space determining means.

16.   An arrangement according to claim 11, wherein the degrading means is arranged to degrade a received item directly upon the receipt of the item at the mobile device in the event that a predetermined condition concerning the item and/or the mobile device is already satisfied.

17.   An arrangement according to claim 11, wherein the degrading means is arranged to degrade said item by at least one of:
    where the item comprises a sampled media stream, reducing the sample rate and/or the number of bits used to represent each sample;
    selectively removing portions of the item;
    where the item is an image, reducing the resolution of the image;
    changing a format in which the item is represented.

18.   An arrangement according to claim 11, wherein the degrading means is arranged to store the degraded item in cache along with an associated flag indicative of its degraded form.

19.   An arrangement according to claim 11, further comprising:
    means for retrieving the received item from cache and presenting it to the user; and
    means for determining whether the item to be, or being, presented to the user is in a degraded form and, if so, for requesting an un-degraded form of the item from an off-device resource;
    these means being arranged to substitute the un-degraded form of the item, when received, for the degraded form being presented to the user.

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There is no evidence submitted with the present Brief on Appeal.

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Related Proceedings Appendix Page C-1

There are no other appeals or interferences related to the present application.